# INDEX OF ARTICLES IN VOLUME ONE

## (October, 1958, through September, 1959)

#### ADHESIVES, BONDING

- "Adhesive Bonds Paper to Metal Automatically," Nov. '58, p. 26
- "Plastic Foam Fastens, Bonds and Insulates New Lid," Dec. '58, p. 18
- "Convair Cuts Costs with Large-Scale Metal Bonding," Dec. '58, p. 21
- "Elastic Adhesive Solves Boat Leakage Problems," Dec. '58, p. 22
- "Quick-Setting Adhesive Bonds Dosimeter Pen Parts," Jan. '59, p. 16
- "Metal Bonding Salvages Scrap," Jan. '59, p. 19
- "Bonded Panels for Refrigerator Cabinets," Feb. '59, p. 19
- "150-Ton Bonding Press Produces Laminated Fiberglas Trimmers," Mar. '59, p. 19
- "Adhesive Sets in Minutes," Mar. '59, p .20
- "Twin Coach Develops 'Ball Bonding' Process," Mar. '59, p. 21
- "Bonding of Helicopter Blades," Mar. '59, p. 22
- "Rubber-to-Metal Bond Simplifies Chuck Design," Apr. '59,
- "Power Tool Maker Uses Bonding," May '59, p. 19
- "Bonding Timing Gear Parts," Aug. '59, p. 21
- "Quick-Curing Bond Speeds Pen Assembly," Sept. '59, p. 19
- "Bonding, Riveting Aluminum Siding," Sept. '59, p. 41

#### AIRCRAFT

- "Solar Welds Metal Foil into Airframe Sections," Oct. '58, p. 30
- "'Hardware Train' Saves Time, Money," Nov. '58, p. 17
- "Fasteners in the Space Age," Nov. '58, p. 36
- "Stainless Steel Fasteners," Nov. '58, p. 47
- "Convair Cuts Costs with Large-Scale Metal Bonding," Dec. '58, p. 21
- "Curtiss-Wright Develops Soldering Metal, Flux," Dec. '58, p. 24
- "Automatic Riveter Modified for Hot Dimpling," Jan. '59,
- "Convair Tape-Controls Spot Welding," Feb. '59, p. 17
- "Assembly Machine Sets Exact Torque Pneumatically," Mar. '59, p. 17
- "Bonding of Helicopter Blades," Mar. '59, p. 22
- "Building the DC-8 Jetliner," Sept. '59, p. 26

- APPLIANCES
  "Tilt Station Facilitates TV Assembly," Oct. '58, p. 21
- "General Electric Cuts Hidden Costs in Dishwasher Assembly," Oct. '58, p. 27
- "Soldered Air-Conditioner Joints Tested by Vibration," Oct. '58, p. 28
- "Metal Stitching Speeds Assembly of Freezers," Oct. '58, p. 33
- "Set Screws Help Cut Appliance Maintenance," Oct. '58, p. 57
- "Automatic Welder Speeds Refrigerator Production," Nov. '58, p. 23
- "Plastic Foam Fastens, Bonds and Insulates New Lid," Dec. '58, p. 18
- "Nutrunner Assembles Compressors in 10-Second Cycles," Dec. '58, p. 21
- "Welding Assembly Tabs to Vinyl-Metal Laminates," Dec. '58, p. 36
- "Rotating Fixture Speeds Evaporator Coil Assembly," Jan.
- "Telecontrol: New Management Tool at Oster," Feb. '59, p. 13 "Assembly Machine Drills, Stakes Refrigerator Parts," Feb.
- "Bonded Panels for Refrigerator Cabinets," Feb. '59, p. 19
- "Automatic Screw Driving Speeds Range Assembly," Feb. '59, p. 21
- "Special Hanger Bolt Halves Norge Part Costs," Feb. '59, p. 24 "Solderless Terminals Aids RCA TV Assembly," Feb. '59, p. 24

- "Unusual Fastening Techniques for Air Conditioners," Apr. '59, p. 28
- "Air Tools Prepare Tubing for Brazing," Apr. '59, p. 37
- "Air Conditioner Line Automated with Standard Welders," May '59, p. 16
- "Progressive Line Changes Boost Welding Efficiency," May
- "Engineering Skill Reaps Profit from Small Parts," June '59,
- "Spot Automation Speeds Assembly at Trade-Wind," June 59, p. 36
- "Fasteners Serve as TV Components," Aug. '59, p. 39

#### ASSEMBLING

- "Tilt Station Facilitates TV Assembly," Oct. '58, p. 21
- "Automatic Transfer in Starter Assembly," Oct. '58, p. 21
- "Conveyor Handles Parts Safely," Oct. '58, p. 22
- "G-E Cuts Hidden Costs in Dishwasher Assembly," Oct. '58, p. 27
- "Assemble 1200 Mops an Hour with Nutsetter," Oct. '58, p. 28 see: "Sound Design Helps Check Harmful Vibrations," Oct. 58, p. 47
- "A Fail-Proof Assembly," Oct. '58, p. 54
- "Assembly Inspection by TV X-Ray," Oct. '58, p. 59
- "Give Assembly Instructions via Dictaphone," Nov. '58, p. 18
- "Self-Locking Inserts Ease Wrench Assembly," Nov. '58, p. 26
- "Meets Health Codes-Cuts Assembly Costs," Nov. '58, p. 28 "Heat Program Timer Aids Welding of Small Assemblies," Dec. '58, p. 16
- "Welding Assembly Tabs to Vinyl-Metal Laminates," Dec. '58, p. 36
- "Rotating Fixture Speeds Assembly Work," Jan. '59, p. 15 "Motorized Files Converted to Assembly Parts Baskets," Feb. '59, p. 18
- "Conveyors are Key to Efficient Assembly of Diesel Turbo-chargers," Feb. '59, p. 40
- "Assembly of Precision Electronic Products," Mar. '59, p. 30
- "Sliding Fixtures Aid Camera Assembly," Mar. '59, p. 35
- "How Clary Builds Reliability at Low Cost," April '59, p. 22 "Fast Bearing Collar Assembly," April '59, p. 41
- "Computer Assembly Techniques," May '59, p. 37
- "Engineering Skill Reaps Profit from Small Parts," June '59,
- "Spot Automation Speeds Assembly at Trade-Wind," June '59, p. 36
- "Radar Cable Assembly," June '59, p. 49
- "TV Printed Circuit Boards Assembled Automatically," July '59, p. 20
- "Assembly of Electric Organs," July '59, p. 37
- "Dirt-Proof Joints for Food Carts," July '59, p. 43
- "Die Cast Parts Effect Assembly Savings," Aug. '59, p. 18
- "Muffle Noise, Boost Efficiency," Aug. '59, p. 24
- "Application of Weld Fasteners, part 2," Aug. '59, p. 33
- "Semi-Automated Assembly of Circuitry Board," Aug. '59, p. 42
- "Building the DC-8 Jetliner," Sept. '59, p. 26
- "Printed Circuits for TV: Efficient and Reliable," Sept. '59,
- "Assembling Manometers Faster," Sept. '59, p. 45
- "Assembly of Artillery Shell," Sept. '59, p. 49

#### ASSEMBLING & FASTENING OF PRODUCTS

- Chain Saws ("Sound Design Helps Check Harmful Vibrations"), Oct. '58, p. 44
- Spark Plugs ("Static Controls for Assembly Machines"), Oct. '58, p. 64
- Coffee Vending Machines ("Meets Health Codes—Cuts Assembly Costs"), Nov. '58, p. 28

# INDEX OF ARTICLES IN VOLUME ONE

## (October, 1958, through September, 1959)

#### ADHESIVES, BONDING

- "Adhesive Bonds Paper to Metal Automatically," Nov. '58, p. 26
- "Plastic Foam Fastens, Bonds and Insulates New Lid," Dec. '58, p. 18
- "Convair Cuts Costs with Large-Scale Metal Bonding," Dec. '58, p. 21
- "Elastic Adhesive Solves Boat Leakage Problems," Dec. '58, p. 22
- "Quick-Setting Adhesive Bonds Dosimeter Pen Parts," Jan. '59, p. 16
- "Metal Bonding Salvages Scrap," Jan. '59, p. 19
- "Bonded Panels for Refrigerator Cabinets," Feb. '59, p. 19
- "150-Ton Bonding Press Produces Laminated Fiberglas Trimmers," Mar. '59, p. 19
- "Adhesive Sets in Minutes," Mar. '59, p .20
- "Twin Coach Develops 'Ball Bonding' Process," Mar. '59, p. 21
- "Bonding of Helicopter Blades," Mar. '59, p. 22
- "Rubber-to-Metal Bond Simplifies Chuck Design," Apr. '59,
- "Power Tool Maker Uses Bonding," May '59, p. 19
- "Bonding Timing Gear Parts," Aug. '59, p. 21
- "Quick-Curing Bond Speeds Pen Assembly," Sept. '59, p. 19
- "Bonding, Riveting Aluminum Siding," Sept. '59, p. 41

#### AIRCRAFT

- "Solar Welds Metal Foil into Airframe Sections," Oct. '58, p. 30
- "'Hardware Train' Saves Time, Money," Nov. '58, p. 17
- "Fasteners in the Space Age," Nov. '58, p. 36
- "Stainless Steel Fasteners," Nov. '58, p. 47
- "Convair Cuts Costs with Large-Scale Metal Bonding," Dec. '58, p. 21
- "Curtiss-Wright Develops Soldering Metal, Flux," Dec. '58, p. 24
- "Automatic Riveter Modified for Hot Dimpling," Jan. '59,
- "Convair Tape-Controls Spot Welding," Feb. '59, p. 17
- "Assembly Machine Sets Exact Torque Pneumatically," Mar. '59, p. 17
- "Bonding of Helicopter Blades," Mar. '59, p. 22
- "Building the DC-8 Jetliner," Sept. '59, p. 26

- APPLIANCES
  "Tilt Station Facilitates TV Assembly," Oct. '58, p. 21
- "General Electric Cuts Hidden Costs in Dishwasher Assembly," Oct. '58, p. 27
- "Soldered Air-Conditioner Joints Tested by Vibration," Oct. '58, p. 28
- "Metal Stitching Speeds Assembly of Freezers," Oct. '58, p. 33
- "Set Screws Help Cut Appliance Maintenance," Oct. '58, p. 57
- "Automatic Welder Speeds Refrigerator Production," Nov. '58, p. 23
- "Plastic Foam Fastens, Bonds and Insulates New Lid," Dec. '58, p. 18
- "Nutrunner Assembles Compressors in 10-Second Cycles," Dec. '58, p. 21
- "Welding Assembly Tabs to Vinyl-Metal Laminates," Dec. '58, p. 36
- "Rotating Fixture Speeds Evaporator Coil Assembly," Jan.
- "Telecontrol: New Management Tool at Oster," Feb. '59, p. 13 "Assembly Machine Drills, Stakes Refrigerator Parts," Feb.
- "Bonded Panels for Refrigerator Cabinets," Feb. '59, p. 19
- "Automatic Screw Driving Speeds Range Assembly," Feb. '59, p. 21
- "Special Hanger Bolt Halves Norge Part Costs," Feb. '59, p. 24 "Solderless Terminals Aids RCA TV Assembly," Feb. '59, p. 24

- "Unusual Fastening Techniques for Air Conditioners," Apr. '59, p. 28
- "Air Tools Prepare Tubing for Brazing," Apr. '59, p. 37
- "Air Conditioner Line Automated with Standard Welders," May '59, p. 16
- "Progressive Line Changes Boost Welding Efficiency," May
- "Engineering Skill Reaps Profit from Small Parts," June '59,
- "Spot Automation Speeds Assembly at Trade-Wind," June 59, p. 36
- "Fasteners Serve as TV Components," Aug. '59, p. 39

#### ASSEMBLING

- "Tilt Station Facilitates TV Assembly," Oct. '58, p. 21
- "Automatic Transfer in Starter Assembly," Oct. '58, p. 21
- "Conveyor Handles Parts Safely," Oct. '58, p. 22
- "G-E Cuts Hidden Costs in Dishwasher Assembly," Oct. '58, p. 27
- "Assemble 1200 Mops an Hour with Nutsetter," Oct. '58, p. 28 see: "Sound Design Helps Check Harmful Vibrations," Oct. 58, p. 47
- "A Fail-Proof Assembly," Oct. '58, p. 54
- "Assembly Inspection by TV X-Ray," Oct. '58, p. 59
- "Give Assembly Instructions via Dictaphone," Nov. '58, p. 18
- "Self-Locking Inserts Ease Wrench Assembly," Nov. '58, p. 26
- "Meets Health Codes-Cuts Assembly Costs," Nov. '58, p. 28 "Heat Program Timer Aids Welding of Small Assemblies," Dec. '58, p. 16
- "Welding Assembly Tabs to Vinyl-Metal Laminates," Dec. '58, p. 36
- "Rotating Fixture Speeds Assembly Work," Jan. '59, p. 15 "Motorized Files Converted to Assembly Parts Baskets," Feb. '59, p. 18
- "Conveyors are Key to Efficient Assembly of Diesel Turbo-chargers," Feb. '59, p. 40
- "Assembly of Precision Electronic Products," Mar. '59, p. 30
- "Sliding Fixtures Aid Camera Assembly," Mar. '59, p. 35
- "How Clary Builds Reliability at Low Cost," April '59, p. 22 "Fast Bearing Collar Assembly," April '59, p. 41
- "Computer Assembly Techniques," May '59, p. 37
- "Engineering Skill Reaps Profit from Small Parts," June '59,
- "Spot Automation Speeds Assembly at Trade-Wind," June '59, p. 36
- "Radar Cable Assembly," June '59, p. 49
- "TV Printed Circuit Boards Assembled Automatically," July '59, p. 20
- "Assembly of Electric Organs," July '59, p. 37
- "Dirt-Proof Joints for Food Carts," July '59, p. 43
- "Die Cast Parts Effect Assembly Savings," Aug. '59, p. 18
- "Muffle Noise, Boost Efficiency," Aug. '59, p. 24
- "Application of Weld Fasteners, part 2," Aug. '59, p. 33
- "Semi-Automated Assembly of Circuitry Board," Aug. '59, p. 42
- "Building the DC-8 Jetliner," Sept. '59, p. 26
- "Printed Circuits for TV: Efficient and Reliable," Sept. '59,
- "Assembling Manometers Faster," Sept. '59, p. 45
- "Assembly of Artillery Shell," Sept. '59, p. 49

#### ASSEMBLING & FASTENING OF PRODUCTS

- Chain Saws ("Sound Design Helps Check Harmful Vibrations"), Oct. '58, p. 44
- Spark Plugs ("Static Controls for Assembly Machines"), Oct. '58, p. 64
- Coffee Vending Machines ("Meets Health Codes—Cuts Assembly Costs"), Nov. '58, p. 28

Adding Machines ("Welding Precision Components"), Nov.

Furniture ("From Bicycles to Furniture"), Nov. '58, p. 42 Bicycles ("From Bicycles to Furniture"), Nov. '58, p. 42 Compressors ("Nutrunner Assembles Compressor in 10-Second Cycles"), Dec. '58, p. 21

Toys ("Stitching Speeds Toy Production"), Dec. '58, p. 33 Aircraft ("Automatic Riveter Modified for Hot Dimpling"), Jan. '59, p. 24; ("Building the DC-8 Jetliner"), Sept. '59, p. 26

Auto Heater ("Auto Heater Tank Brazing"), Jan. '59, p. 28 Typewriters (Royal McBee Cuts Costs with Self-Tapping Screws"), Feb. '59, p. 26

Diesel Turbochargers ("Conveyors are Key to Efficient Assembly of Diesel Turbochargers"), Feb. '59, p. 40

Helicopter Blades ("Bonding of Helicopter Blades"), Mar. '59, p. 22

Electronic Aircraft Products ("Assembly of Precision Electronic Products"), Mar. '59, p. 30

Adding Machines ("How Clary Builds Reliability at Low Cost"), April '59, p. 22

Air Conditioners ("Unusual Fastening Techniques for Air Conditioners"), April '59, p. 28

Computers ("Computer Assembly Techniques"), May '59, p. 37

Toasters ("Engineering Skill Reaps Profit from Small Parts"), June '59, p. 22

Ventilation Equipment ("Spot Automation Speeds Assembly at Trade-Wind"), June '59, p. 36

Transmission ("Simplified Transmission Assembly"), June

Radar Cable ("Radar Cable Assembly"), June '59, p. 49 Organs ("Assembly of Electric Organs"), July '59, p. 37

Food Carts ("Dirt-Proof Joints for Food Carts"), July '59,

Shells ("Assembly of Artillery Shells"), Sept. '59, p. 49

#### ASSEMBLY MACHINES

"Static Controls for Assembly Machines," Oct. '58, p. 64 "Assembly Machine Drills, Stakes Part," Feb. '59, p. 17 "Assembly Machine Sets Exact Torque," Mar. '59, p. 16 see: "Fast Bearing Collar Assembly," Apr. '59, p. 41

"Fabricator Licks Tough Forming, Assembly Job on the '59 Chevy," May '59, p. 11

"Pin-Installing Machine Boasts 8-Month Payback Period,"

June '59, p. 20 see: "Ford Simplifies Transmission Assembly," June '59, p. 41 "Efficient Pen Assembly Claimed for Machine," July '59, p. 21

"Semi-Automated Assembly of Circuitry Boards," Aug. '59, p. 43

"Printed Circuits for TV: Efficient and Reliable," Sept. '59,

"Assembly of Artillery Shells, Sept. 59, p. 49

#### AUTOMOTIVE

"Automatic Transfer in Starter Assembly," Oct. '58, p. 21 "Static Controls for Spark Plug Assembly Machines," Oct. '58, p. 64

"Install 4800 Rivets an Hour at Dorsey Trailers," Nov. '58, p. 75 "Chrysler Solves Deburring Problem," Dec. '58, p. 24

"Conveyors are Key to Assembly of Diesel Turbochargers," Feb. '59, p. 40

"Motorized Files Converted to Assembly Parts Baskets," Feb. '59, p. 18

"Holding Fixture Speeds Stud Setting," Mar. '59, p. 15

"Twin Coach Develops Ball-Bonding Process',, Mar. '59, p. 22 "Fabricator Licks Tough Forming, Assembly Job on New Chevrolet," May '59, p. 11

"American Motors Varies Spot Welding Methods for Efficient Assembly," May '59, p. 19

"Auto Trim Attached by Projection Welded Fasteners," May '59, p. 20

"White Motor Rigidly Controls Bolting Operations," June '59, p. 19

"Simplified Transmission Assembly at Ford," June '59, p. 41

"Future Engineers Study Auto Assembly," June '59, p. 75 "300 HP Gas Turbine Engine Rivals Diesel in Economy," Aug. '59, p. 12

"Massey-Harris Cuts Costs by Resistance Welding," Sept. '59, p. 24

#### BOLTS

"Self-Locking Bolts Cut Maintenance on Presses," Oct. '58,

"RB & W Designs Strong, Close Tolerance Hex Unit," Dec. '58, p. 18

"Ore Tower Built with High-Strength Bolts," Feb. '59, p. 22 see: "How Tight is Tight?" Dec. '58, p. 40

see: "What is Proper Torque?" Feb. '59, p. 30

"Special Hanger Bolt Halves Norge Part Loss," Feb. '59, p. 24 see: "The Fastening of Light Metals," Mar. '59, p. 39

"Lockbolt Method of Fastening," Feb. '59, p. 45

see: "Tightening Threaded Fasteners," May '59, p. 24 "Bolts Secured by Vibration-Resistant Sealant," Apr. '59, p. 19 "White Motor Rigidly Controls Bolting Operations," June '59, p. 19

"Speed Bridge Erection by Using Bolts," July '59, p. 19 "Lockbolt Fastening Speeds Dome Erection," Aug. '59, p. 11 "Navy Adopts Lockbolts for Destroyer Repair Program,"

#### BRAZING

Sept. '59, p. 20

"High Temperature Brazing," Oct. '58, p. 49

"Brazing Cuts Engine Part Cost 45%," Dec. '58, p. 15

"Automatic Silver Brazing Speeds Production Line," Dec. '58, p. 22

"Curtiss-Wright Develops Soldering Metal, Flux," Dec. '58, p. 24

"Auto Heater Tank Brazing," Jan. '59, p. 28

"Brazing Method Cuts Honeycomb Costs," Mar. '59, p. 15

"Rotary Air Tools Prepare Tubing for Brazing," Apr. '59, p. 37 "Dip Brazing Reduces Assembly Failures," May '59, p. 15

see: "Dirt-Proof Joints for Food Carts," July '59, p. 43 "Automatic Facility Cuts Brazing Time by 90%," Aug. '59,

"Induction Heating Eases Brazing Job," Sept. '59, p. 19

#### BUSINESS

"Sales and Earnings," Oct. '58, p. 9-Nov. '58, p. 7-Dec. '58,

"1959 Forecast," Jan. '59, p. 7

"Education: U.S. vs. U.S.S.R." Feb. '59, p. 7

"The Stock Market's Future," Mar. '59, p. 7

"Tax Depreciation Reform," Apr. '59, p. 7

"The Recession: Lessons to Learn," May '59, p. 7

"Inflation-Management's Move?" June '59, p. 7

"Let's Balance Our Budget," July '59, p. 7

"Business Sees 'Red' Overseas," part 1, Aug. '59, p. 7.-part 2, Sept. '59, p. 11

#### CLAMPS

"Felt-Lined Clamps Reduce Soldering Heat Rejects," May '59, p. 17

"Clamps Cut Coil-Binding Time," July '59, p. 16

"Clamps Speed Manometer Assembly," Sept. '59, p. 45

### CLIPS

"Copper-Nickel Alloy Clips Solve Corrosion Problem," June '59, p. 19

"Steel Clip Springs Back into Original Shape after Flattening, Flexing," Sept. '59, p. 23

#### COLOR CODING

"Coloring Process Codes Plastic Assembly Parts," Apr. '59,

"Fasteners for Color Matching or Coding," Aug. '59, p. 49

#### CONVEYORS

"Conveyor Handles Parts Safely at any Angle," Oct. '58,

"Conveyors are Key to Efficient Assembly of Diesel Turbo-chargers," Feb. '59, p. 40

"Westinghouse Welding Conveyor Ideas Modernize Transformer Assembly," June '59, p. 11

"Productive Ideas in Conveyors," Aug. '59, p. 15

#### DESIGN

"Sound Design Helps Check Harmful Vibrations," Oct. '58, p. 44

"Design and Application of Set Screws," Oct. '58, p. 70

"Let's Consider Rivet Applications," Jan. '59, p. 32

"Quarter-Turn Fasteners in Product Design," Apr. '59, p. 45 "The Design and Application of Retaining Rings," May '59,

"Engineering Skill Reaps Profit from Small Parts," June '59, p. 23

"Design and Application of Well Fasteners," part 1, July '59, p. 28-part 2, Aug. '59, p. 33

"Blind Rivets Permit One-Man Assembly," July '59, p. 49

"Let's Consider Applications of Solid Pins," Aug. '59, p. 28 "Versatility of Die-Cast Fasteners," Sept. '59, p. 55

#### **EDUCATION**

"Fastener School One of Best in Industry," Aug. '59, p. 47

#### **ELECTRONICS**

"Spin-Riveter Simplifies Terminal Board Assembly," Oct. '58, p. 27

"Printed Circuit Boards Assembled Automatically," July '59, p. 20

"Assembly of Electric Organs," July '59, p. 37

"Semi-Automated Assembly of Circuitry Board," Aug. '59,

#### **FASTENERS**

"G-E Cuts Hidden Costs in Dishwasher Assembly," Oct. '58, p. 29

"The Design and Application of Set Screws," Oct. '58, p. 70 "Fasteners for the Space Age," Nov. '58, p. 36

"From Bicycles to Furniture," Nov. '58, p. 42

"Stainless Steel Fasteners," Nov. '58, p. 47

"RB & W Designs Strong, Close Tolerance Hex Unit," Dec. '58, p. 18

"End-Welded Studs Save in Steel Joint Fastening," Dec. '58, p. 19

"Standardization Aids Research & Production," Dec. '58, p. 26 "Tensile Area of Threads," Dec. '58, p. 46

"Pins Solve Reactor Fastening Problem," Jan. '59, p. 15

"New Design-Quick Release Panel Nut," Jan. '59, p. 17

"Screw-Lock Insert Aids Assembly," Jan. '59, p. 19

"Couplings Lock, Seal Separator Screens," Jan. '59, p. 21

"Let's Consider Rivet Applications," Jan. '59, p. 32

"Quick Servicing for Gasoline Pumps," Jan. '59, p. 36

"Hardened Plug Nuts Save Tapping," Jan. '59, p. 41

"Shock and Vibration Testing," Feb. '59, p. 34

"Lockbolt Method of Fastening," Feb. '59, p. 45 "The Fastening of Light Metals," Mar. '59, p. 39

"Unusual Fastening Techniques for Air Conditioners," Apr. '59, p. 28

"Quarter-Turn Fasteners in Product Design," Apr. '59, p. 45 "Auto Trim Attached by Projection Welded Fasteners," May '59, p. 20

"Tightening Threaded Fasteners," part 1, May '59, p. 24

"Engineering Skill Reaps Profit from Small Parts," June '59, p. 23

"Power Tools for Tightening Threaded Fasteners," part 2, June '59, p. 27

"New Fastening Technique Eliminates Deep Drawing," June '59, p. 44

"How Good Are the Self-Tapping Screws You Buy?" July '59, p. 22

"The Design and Application of Weld Fasteners," part 1, July '59, p. 28

"New Fastening Method: Locking Flutes," Aug. '59, p. 15

"Fasteners Serve as TV Components," Aug. '59, p. 39

"Fasteners for Color Matching or Coding," Aug. '59, p. 49 "X-15 Rocket Re-Entry Flight to Impose Severe Test on Fastener Components," Sept. '59, p. 23

"Versatility with Die-Cast Fasteners," Sept. '59, p. 55

## FASTENERS, projection welded

"Auto Trim Attached by Projection Welded Fasteners," May 59, p. 20

"Design and Application of Weld Fasteners," part 1, July '59, p. 28-part 2, Aug. '59, p. 33

### FEEDERS (Nuts, parts, etc.)

"Air Vibrator Feeder Regulates Locknut Flow," Dec. '58, p. 25

### **FIXTURES**

"Rotating Fixture Speeds Assembly Work," Jan. '59, p. 15

"Holding Fixture Speeds Stud Setting," Mar. '59, p. 15

"Sliding Fixtures Aid Camera Assembly, Mar. '59, p. 35

"Clamping Tools Shorten Setup Time," May '59, p. 15

"Felt Lined Clamps Reduce Soldering Heat Rejects," May '59, p. 17

"Turning Vibrating Device Improves C-V Quality Control," May '59, p. 22

"Clamps Cut Coil Binding Time," July '59, p. 16

#### HARNESS WIRING

see: "Assembly Instructions by Dictaphone," Nov. '58, p. 18 "Hughes Automates Computer Wiring," Dec. '58, p. 15 see: "Solderless Terminal Joining," Feb. '59, p. 24 see: "Computer Assembly Techniques," May '59, p. 37 "Radar Cable Assembly," June '59, p. 49 see: "Assembly of Electric Organs," July '59, p. 37 "Testing Car Wiring Harness," Sept. '59, p. 25

### HEADING, hot

see: "Welding Precision Components," Nov. '58, p. 33

#### HONEYCOMB

see: "High Temperature Brazing," Oct. '58, p. 49 "Brazing Method Cuts Honeycomb Costs," Mar. '59, p. 15

"Self-Locking Inserts Ease Wrench Assembly," Nov. '58, p. 26 "Screw-Lock Insert Aid Assembly," Jan. '59, p. 19 see: "Simplified Transmission Assembly," June '59, p. 41 "Threaded Wire Inserts Resist Vibration, Strengthen Slide Feeder Arrangement, July '59, p. 19

#### MATHEMATICS

see: "The Missiles-Age Hurls a Challenge: Product Reliability," Oct. '58, p. 36

#### MISSILES

'Recoverable Supersonic Target Missile Cheers Taxpayers," Oct. '58, p. 13

"New Missile Parts Plant," Oct. '58, p. 13

"Instant Acceleration to 18 G's on Missile Test Rails," Oct. '58, p. 14

"The Missiles-Age Hurls a Challenge: Product Reliability," Oct. '58, p. 36

"Fasteners in the Space Age," Nov. '58, p. 36

"Missile Tail Sections Built by Casting, Bolting," Jan. '59, p. 22 "150-Ton Bonding Press Produces Laminated Fiberglas Trimmers," Mar. '59, p. 19

"X-15 Rocket Re-Entry Flight to Impose Severe Test on Fastener Components," Sept. '59, p. 23

#### NUTS

"Nuts for Jet Engines Operating up to 1400 F," Oct. '58, p. 22 "A Fail-Proof Assembly," Oct. '58, p. 54

"RB&W Designs Strong, Close Tolerance Hex Unit," Dec. '58, p. 18

"New Design—Quick Release Panel Nut," Jan. '59, p. 17 "Hardened Plug Nuts Save Tapping," Jan. '59, p. 41 see: "Tightening Threaded Fasteners," May '59, p. 24

#### PINS

"Pins Solve Reactor Fastening Problem," Jan. '59, p. 15

"Pin-Installing Machine Boasts 8-Month Payback Period," June '59, p. 20

"Let's Consider Applications of Solid Pins," Aug. '59, p. 28

#### **PLASTICS**

"Coloring Process Codes Plastic Assembly Parts," Apr. '59, p. 17

"American Plastics Makes Long-Wearing Nylon Hinge," Apr. '59, p. 21

"New Uses for Burr-Like Nylon Fastener," June '59, p. 15
"Tests Reveal Acetal Resin Pipe Plugs Seal to 1350 PSI,"
June '59, p. 20

"Liquid Polymer Solves Sealing Problems at Norgren," Aug. '59, p. 22

#### **POWER TOOLS**

"Assemble 1200 Mops An Hour," Oct. '58, p .28

"Nutrunner Assembles Compressor in 10-Second Cycles," Dec. '58, p. 21

"Automatic Screw Driving Speeds Range Assembly," Feb. '59, p. 21

"Solderless Terminal Joining Aids TV Assembly," Feb. '59, p. 24

"Lockbolt Method of Fastening," Feb. '59, p. 45

"Rotary Air Tools Prepare Tubing for Brazing," Apr. '59, p. 37

"Power Tool Maker Uses Bonding," May '59, p. 19

"Power Tools for Tightening Threaded Fasteners," part 2, June '59, p. 27

"Muffle Noise, Boost Efficiency," Aug. '59, p. 24

"Air Tool Attachment Developed to Trim Blind Rivets," Sept. '59, p. 20

see: "Sound Design Helps Check Harmful Vibrations," Oct. '58, p. 44

see: "Meets Health Code—Cuts Assembly Costs," Nov. '58, p. 28

see: "From Bicycles to Furniture," Nov. '58, p. 42

see: "How Tight is Tight?" Dec. '58, p. 40

see: "Royal McBee Cuts Costs with Self-Tapping Screws," Feb. '59, p. 27

see: "What is Proper Torque?" Feb. '59, p. 30

see: "Unusual Fastening Techniques for Air Conditioners," Apr. '59, p. 28

#### PRINTED CIRCUITS

"Felt-Lined Clamps Reduce Soldering Heat Rejects," May '59, p. 17

"TV Printed Circuit Boards Assembled Automatically," July '59, p. 20

"Semi-Automated Assembly of Circuitry Board," Aug. '59, p. 43

"Printed Circuits for TV: Efficient and Reliable," Sept. '59, p. 34

#### RELIABILITY

"The Missiles-Age Hurls a Challenge: Product Reliability, Oct. '58, p. 36

"Assembly Inspection by TV X-Ray," Oct. '58, p. 59

"How Clary Builds Reliability at Low Cost," Apr. '59, p. 21 "Dip Brazing Reduces Assembly Failures," May '59, p. 15

"Felt Lined Clamps Reduce Soldering Heat Rejects," May '59, p. 17

"Turning Vibrating Device Improves Quality Control," May '59, p. 22

"How About Ultrasonic Weld Inspection," Aug. '59, p. 19

#### RINGS

"The Design and Application of Retaining Rings," May '59, p. 30

"Chance Vought Develops New Hydraulic O-Ring Seal," July '59, p. 16

#### RIVETING

"Card or Tape-Controlled," Oct. '58, p. 16

"Spin-Riveter Simplifies Terminal Board Assembly," Oct. '58, p. 27

"Rubber Rivets Seal Holes," Nov. '58, p. 14

"Jet Wing, Body Skins Flush Riveted," Jan. '59, p. 20

"Automatic Riveter Modified for Hot Dimpling," Jan. '59, p. 24

"Let's Consider Rivet Applications," Jan. '59, p. 32

"Blind Rivets Permit One-Man Assembly," July '59, p. 49
"Air Tool Attachment Developed to Trim Blind Rivets," Sept. '59, p. 20

"Bonding, Riveting Aluminum Siding," Sept. '59, p. 41 see: "Upset Tool Speeds Riveting," July '59, p. 47

#### **SCREWS**

"The Design and Application of Set Screws," Oct. '58, p. 70

"Royal McBee Cuts Costs with Self-Tapping Screws," Feb. '59, p. 25

"How Good Are The Self-Tapping Screws You Buy?" July '59, p. 22

see: "Fast Bearing Collar Assembly," Apr. '59, p. 41

#### SEALANTS and SEALING

"Liquid Sealant Locks Pipe Plugs," Nov. '58, p. 24

"Roller Bearings Locked with Liquid Sealant," Jan. '59, p. 23 "Bolts Secured by Vibration-Resistant Sealant," Apr. '59, p.

"Liquid Polymer Solves Sealing Problem," Aug. '59, p. 22
"Latches Seal DC-8's Turbo-Compressor Cabin," Sept. '59, p. 25

#### SOLDERING

"Soldered Joints Tested by Vibration," Oct. '58, p. 28

"Selective Plating Allows Soldering Without Flux," Nov. '58, p. 20

"Tin-Zinc Solder Joins Aluminum to Copper," Feb. '59, p. 23 "G-E Speeds Motor Armature Soldering," Apr. '59, p. 15

"Silver Soldering Solves Tricky Conduit Joining Problem," Apr. '59, p. 19

"Felt Lined Clamps Reduce Soldering Heat Rejects," May '59, p. 17

"Automatic Soldering Quadruples Output," July '59, p. 15 see: "Auto Heater Tank Brazing," Jan. '59, p. 28

#### STANDARDS

"Standardization Aids Research and Production," Dec. '58, p. 26

#### STICK WAX

see: "Sound Design Helps Check Harmful Vibrations," Oct. '58, p. 46

### STITCHING, metal

"Metal Stitching Speeds Assembly of Freezers," Oct. '58, p. 33

"Stitching Speeds Toy Production," Dec. '58, p. 33

"Ring Forming Stitcher Cuts Costs 50%," Feb. '59, p. 22
"Metal Fabricator Finds Stitching Five Times Faster," June '59, p. 16

#### STUDS

see: "Sound Design Helps Check Harmful Vibrations," Oct. '58, p. 46

"Holding Fixture Speeds Stud Setting," Mar. '59, p. 15 see: "The Fastening of Light Metals," Mar. '59, p. 39

"Carbide Tapped Holes Speed Stud Installation," Aug. '59, p. 21

#### **TELEVISION**

"Tilt Station Facilitates TV Assembly," Oct. '58, p. 20

"Assembly Inspection by TV X-Ray," Oct. '58, p. 59

"TV Printed Circuit Boards Assembled Automatically," July '59, p. 20

"Solderless Terminal Joining Aids TV Assembly at RCA", Feb. '59, p. 24

"Fasteners Serve as TV Components," Aug. '59, p. 39

"Printed Circuits for TV: Efficient and Reliable," Sept. '59, p. 34

#### THREADS

"Tensile Area of Threads," Dec. '58, p. 46

#### TORQUE

"How Tight Is Tight?" '59, p. 40

"What Is Proper Torque?" Feb. '59, p. 30

"Assembly Machine Sets Exact Torque," Mar. '59, p. 16

"How to Determine Torque-Tension Relationships," Mar. '59,

"Tightening Threaded Fasteners," part 1, May '59, p. 24

"Power Tools for Tightening Threaded Fasteners," part 2, June '59, p. 27

#### TRADE SHOWS

1959 Design Engineering Show, May '59, p. 46

#### VIBRATION

"Sound Design Helps Check Harmful Vibrations," Oct. '58, p. 44

"Shock and Vibration Testing," Feb. '59, p. 34

"Threaded Wire Inserts Resist Vibration, Strengthen Slide Feeder Assembly," July '59, p. 19

#### WELDING

"Solar Welds Metal Foil Into Airframe Sections," Oct. '58,

"Investigate Seam Welding," Nov. '58, p. 14

"Magnetic Tape Tracer Aids Arc Welding," Nov. '58, p. 17

"New Reactor Cuts Cost," '58, p. 19

"Ultrasonic Spotwelds all Metals, No Fusion," Nov. '58 p. 21

"Automatic Spotwelder Speeds Refrigerator Production," Nov. '85, p. 23

"Welding Precision Components," Nov. '58, p. 33

"Heat Program Timer Aids Welding of Small Assemblies," Dec. '58, p. 16

"Welding Assembly Tabs to Vinyl-Metal Laminates," Dec. '58, p. 36

"Ultrasonic Seam Welder Welds Dissimilar Parts," Jan. '59, p. 16

"Convair Tape-Controls Spot Welding," Feb. '59, p. 17

"Production-Line Welding for Large Bridge Girders," Mar. '59, p. 19

"Sigma Welding Cuts Reaction Coil Costs," Apr. '59, p. 15

"Electron Beam Welder Joins Reactive, Exotic Metals," Apr. '59, p. 16

"Air Conditioner Line Automated with Standard Welders," May '59, p. 16

"American Motors Varies Spot Welding Methods," May '59, p. 19

"Auto-Trim Attached by Projection Welded Fasteners," May '59, p. 20

"Progressive Line Changes Boost Welding Efficiency," May '59, p. 42

"Westinghouse Welding, Conveyor Ideas Modernize Transformer Assembly," June '59, p. 11

"The Design and Application of Weld Fasteners," part 1, July '59, p. 27

"How About Ultrasonic Weld Inspection?" Aug. '59, p. 19

"25,000 Inert-Gas Spot Welds Used in Tank Fabrication," Aug. '59, p. 22

"Electron Beam Units Weld Super Alloys," Aug. '59, p. 23

"The Design and Application of Weld Fasteners," part 2, Aug. '59, p. 33

"G-E Welds Relay to Cut Contact Contamination," Sept. '59, p. 21

"Farm Tool Fabricator Cuts Costs by Resistance Welding," Sept. '59, p. 24

#### **EDITORIALS**

"An Opportunity to Soar Your Imagination," Oct. '58, p. 5

"There's More Falling Than Autumn Leaves," Nov. '58, p. 5

"Standardization-A Challenge to Ingenuity,," Dec. '58, p. 5

"The Responsibility of Sharing Know-How," Jan. '59, p. 5

"A Missing Link in Product Design?" Feb. '59, p. 5

"The Payoff of Lifetime Reliability," Mar. '59, p. 5

"Low Engineer Enrollment Again, Why?" Apr. '59, p. 5

"Automotive Progress Is Wonderful, but . . . " May '59, p. 5

"Assembly Work for the Handicapped," June '59, p. 5

"Abetting The Forces of Inflation," July '59, p. 5

"Don't Compromise With Quality Control," Aug. '59, p. 5

"Have You Considered a Fastener School?" Sept. '59, p. 7

#### ONE LAST WORD

"The Meeting Will Come to Order," Oct. '58, p. 104

"The Pleading Maiden in Outer Space," Nov. '58, p. 80

"Trim the Fat, Save the Muscle," Dec. '58, p. 80

"Who, If Not You? When, If Not Now?" Jan. '59, p. 64

"It's More Than A New Year, It's A New Age." Feb. '59, p. 80

"The Strychnine and Potassium Cyanide of Business," Mar. '59, p. 72

"When Is A Fastener Not A Fastener?" Apr. '59, p. 84

"Your Mortal Enemies, The Detractors," May '59, p. 74

"Automate Or Die," June '59, p. 88

"Knowledge and the Inevitability of Specialized Responsibility," July '59, p. 72

"Specialized Responsibility Requires Specialized Reading," Aug. '59, p. 82

"Poor Quality: Whose Fault?" Sept. '59, p. 98

#### **AUTHORS**

Anderson, Kenneth E.

Vice Pres. & Gen. Mgr. Norge Div., Borg-Warner Corp. "Rotary Tools Prepare Tubing for Brazing," Apr. '59, p. 37

Battles, Ralph S.

Pres., Judson L. Thomson Mfg. Co. "Let's Consider Rivet Applications," Jan. '59, p. 32

Booth, Hal

Facilities Engineer, Long Beach Div., Douglas Aircraft Co. "Automatic Riveter Modified For Hot Dimpling," Jan. '59, p. 24

Braendel, F. W.

"Pres., Groov-Pin Corp.
"Let's Consider Applications of Solid Pins," Aug. '59, p. 28

Brilmyer, H. G.

Vice Pres. of Research, Huck Mfg. Co.

"Blind Rivets Permit One-Man Assembly," July '59, p. 49

Burns, Arthur G., Dr. Pres., National Bureau of Economic Research "The Recession: Lessons to Learn," May '59, p. 7

Buschmeyer, William Product Planner, McClintock Mfg. Co. "Dirt-Proof Joints for Food Carts," July '59, p. 43

Butler, W. Jack

Aramco Public Relations, Arabian American Oil Co. "Business Sees 'Red' Overseas!" Part I, Aug '59, p. 7 "Business Sees 'Red' Overseas!" Part II, Sept. '59, p. 11

Chase, Carl Industrial Engineer, Gries Reproducer Corp.
"Versatility With Die-Cast Fasteners," Sept. '59, p. 55

Crespy, Paul Prod. Superintendent, Heater Div., Blackstone Corp. "Auto Heater Tank Brazing," Jan. '59, p. 28

Davey, John S.
Vice Pres., Research & Eng., Russell, Burdsall & Ward
Bolt and Nut Co. "How To Determine Torque-Tension Relationships," Mar. '59, p. 26

Dodge, X. Raymond Vice Pres., Set Screw & Mfg. Co. "The Design & Application Of Set Screws," Oct. '58, p. 70

Engstrand, William D. Western Editor "Conveyors Are Key To Efficient Assembly of Diesel Turbochargers," Feb. '59, p. 40 "Computer Assembly Techniques," May '59, p. 37
"Spot Automation Speeds Assembly at Trade-Wind," June '59, p. 36

Mechanical Engineer, Naval Ordnance Laboratory "Shock and Vibration Testing," Feb. '59, p. 34 Hallowell, H. Thomas, Jr.

Finelli, Daniel

Heuertz, Matt E.

Pres., Standard Pressed Steel Co. "The Missiles-Age Hurls A Challenge at Us . . . Product Reliability," Oct. '58, p. 36

Hanneman, W. M. Executive Eng., Shakeproof Div., Illinois Tool Works "How Tight Is Tight?" Dec. '58, p. 40

Hazard, Leland Board of Directors, Pittsburgh Plate Glass Co. "Inflation—Management's Move.," June '59, p. 7

Managing Editor
"Sound Design Helps Check Harmful Vibrations," Oct. '58, p. 44 "Welding Assembly Tabs to Vinyl-Metal Laminates," Dec. '58, p. 36

"New Fastening Technique Eliminates Deep Drawing," June '59, p. 44

Knohl, F. K. Chief Field Eng., Shakeproof Div., Illinois Tool Works "Fasteners for Color Matching or Coding," Aug. '59, p. 49

Kolbert, Oswald, Dr. Technical Mgr., Truarc Retaining Rings Div., Waldes Kohinoor, Inc. "The Design and Application of Retaining Rings," May '59, p. 30

Long, William E. Engineer, Lamson & Sessions Co. "Hardened Plug Nuts Save Tapping," Jan. '59, p. 41

Mfg. Mgr., Parker-Kalon Div., General American Transportation Corp.
"How Good Are the Self-Tapping Screws You Buy," July '59, p. 22

Maher, Lawrence A.
Factory Manager, Westfield Mfg. Co.
"From Bicycles to Furniture," Nov. '58, p. 42

McCarthy, Fred General Foreman, Cable Dept., Raytheon Mfg. Co. "Radar Cable Assembly," June '59, p. 49

McFee, W. E. Supv. Prod. Information Service, Armco Steel Corp. "Stainless Steel Fasteners," Nov. '58, p. 47

Mitnik, W. P. Mgr., Prod, Eng. Dept., Gilbert & Barker Mfg. Co. "Quick Servicing for Gasoline Pumps," Jan. '59, p. 37

Newcomer, J. R. Chief Engineer, Camloc Fastener Corp.
"Quarter-Turn Fasteners in Products Design," April '59, p. 45

Olds, Frank V. Assistant Comptroller, Chrysler Corp. "Wanted: Tax Depreciation Reform!" April '59, p. 7

Pierce, Merrill Lynch Fenner & Smith "The Stock Market's Future," Mar. '59, p. 7

Rosan, Jose, Sr. President, Rosan, Inc. "Fasteners in the Space Age," Nov. '58, p. 36

Salrin, R. E. Chief Prod. Eng., LearCal Div., Lear, Inc. "Assembly of Precision Electronic Products," Mar. '59, p. 30

Savaglio, Fred Plant Mgr., Drayer-Hanson Div., National-U.S. Radiator "Unusual Fastening Techniques for Air Conditioners," April '59, p. 28

Schlarman, H. Mech. Eng. "Tensile Area of Threads," Dec. '58, p. 46

Schmidt, Emerson P., Dr. Director, Economic Research, Chamber of Commerce of the U.S. "1959 Forecast: Recovery, Yes; Boom, No," Jan. '59, p. 7

Setapen, A. M.
Mgr. of Eng., Handy & Harman
"High Temperature Brazing," Oct. '58, p. 49

Skoog, Donald K. Director of Research, Thor Power Tool Co. "What Is Proper Torque?" Feb. '59, p. 30

Smith, Ray H. Associate Editor "Assembly Inspection by TV X-Ray," Oct. '58, p. 59
"The Design & Application of Weld Fasteners," July '59, "Application of Weld Fasteners," Aug. '59, p. 33 "Assembly of Artillery Shell," Sept. '59, p. 49

Sparks, Frank H., Dr.
President, Council for Financial Aid to Education "Education Front: U.S. Industry vs. U.S.S.R.," Feb. '59, p. 7

Sturges, Edward B., II President, Lock Thread Corp. "The Fastening of Light Metals," Mar. '59, p. 39

Teller, Henry J. Supervisor of Assembly Standards, Royal McBee Corp.
"Royal McBee Cuts Costs with Self-Tapping Screws," Feb. '59, p. 26

Van Sittert, Paul Chief Development Eng., The Rotor Tool Co.
"Tightening Threaded Fasteners," May '59, p. 24
"Power Tools for Tightening Threaded Fasteners," June '59, p. 27

Gen. Superintendent, DC-8 Facility, Douglas Aircraft Co. "Building the DC-8 Jetliner," Sept. '59, p. 26

Ward, Darrell **Engineering Editor** "A Fail-Proof Assembly," Oct. '58, p. 54
"Static Controls for Assembly Machines," Oct. '58, p. 64
"Meets Health Codes—Cuts Assembly Costs," Nov. '58, p. 28
"Standardization Aids Research and Production," Dec. '58,

"Standardization" p. 26
p. 26
"What Is Proper Torque?" Feb. '59, p. 30
"Bonding of Helicopter Blades," Mar. '59, p. 22
"How Clary Builds Reliability at Low Cost," April '59, p. 22
"Progressive Line Changes Boost Welding Efficiency,"
May '59, p. 42
"Engineering Skill Reaps Profit from Small Parts," June May '59, p. 42
"Engineering Skill Reaps Profit from Small Parts," June '59, p. 22
"The Assembly of Electric Organs," July '59, p. 37
"Muffle Noise, Boost Efficiency," Aug. '59, p. 24
"Printed Circuits for TV: Efficient & Reliable," Sept. '59,

p. 34

Wyckoff, W. R. Mgr. Technical Services, The Townsend Co. "The Lockbolt Method of Fastening," Feb. '59, p. 45